

## STR-7120 2-Tone Selective Call Unit

The 2-tone selective call unit STR-7120 consists of two independent tone generators, and a 2-tone decoder with alarm, alarm lamp, and speaker in/out circuits.

The tone generators are Wien-Bridge oscillators constructed around IC1 and IC2 (TOA2709) using "soft limiting" by the diodes D1, D2, and D3, D4 to obtain a low harmonic distortion.

The tone frequencies are adjusted to the correct frequency by the resistors R24 (R 27), R4 (R17), and the potentiometers R5, R18.

The output signal is, via potentiometers for level adjustment and push button switches for tone selection, applied to the input terminals of the microphone amplifier.

The tone decoders are phase lock loop circuits constructed around IC3 and IC4 (NE 567). By applying a correct tone signal to the input of the decoders, their outputs will go to logic "0" level.

The centerfrequencies of the decoders are determined by R24, C16 (R27, C20), adjusted by R23 (R26), and the bandwidth by C17 (C21). By means of the diodes D5 and D6 the decoders are blocked during transmit.

The outputs of the decoders are applied to a NOR circuit IC5 (7402), the output of IC3 passing a delay circuit (R5, C19), and a phase inverter Q1, thus enabling decoding of sequence calls.

The output of the NOR circuit, indicating a correct 2-tone call is activating the alarm relay K1 via the switch transistor Q2, and the call flip-flop Q3, Q4, causing the call lamp to go on.

If the push button ALARM and SPEAKER are not activated, a call will activate the alarm relay which then will remain in the activated position, and open the loudspeaker until the RESET button is pushed.

If the ALARM button is pushed, the alarm relay will be activated only during the call period, and an external alarm could be activated. Thus the loudspeaker only opens during the call period, it is necessary to push the SPEAKER button to enable voice communication.

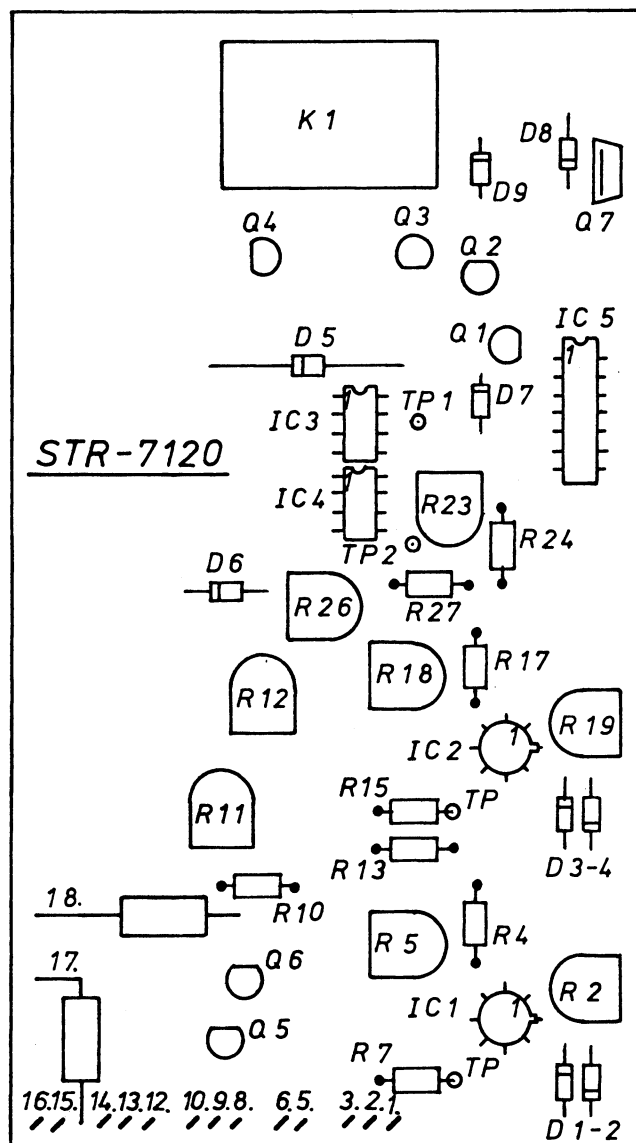
The call lamp will be switched off, if the RESET button is pushed.

To indicate communication on the radio channel, an occupied indicator lamp OCC will go on. The lamp circuit, consisting of the driver Q5 and lamp switch Q6, is controlled by a squelch signal from the IF-unit.

To supply the IC's with 5V a voltage regulator, constructed around Q7 and D8, is applied.

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STR-7120

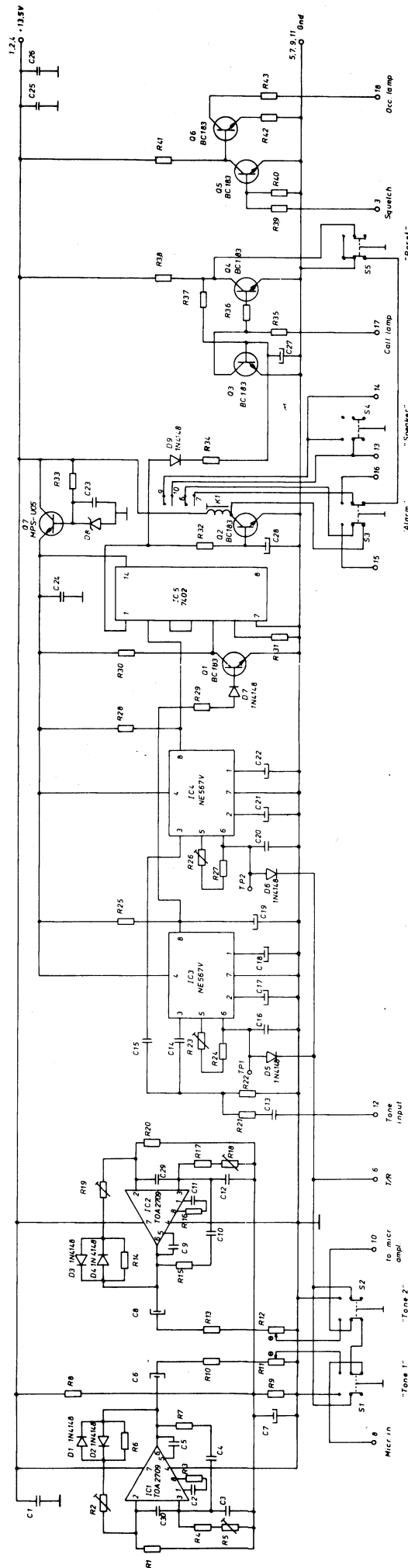
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T1 (4) / R17  
 20KHZ 10K  
 1500HZ 4K7  
 2.500HZ 2K2

R7 R24/27  
 90KHZ 10K  
 1300HZ 4K8

R7/R15  
 11K  
 6K2  
 4K7



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Selective Call  
 STR-7120  
 Dwg. no. 7120-4

# Component List

## Selektiv call unit - STR-712o

<u>Ckt. symbol</u>	<u>Description</u>	<u>Value or type</u>
IC1	Op. amp.	TOA 2741
IC2	do.	TOA 2741
IC3	Tone decoder	NE567V
IC3	do.	NE567V
IC5	Gate	74o2
Q1	Transistor	BC183
Q2	do.	BC183
Q3	do.	BC183
Q4	do.	BC183
Q5	do.	BC183
Q6	do.	BC183
Q7	do.	MPS-Uo5( --o1)
D1	Diode	1N4148
D2	do.	1N4148
D3	do.	1N4148
D4	do.	1N4148
D5	do.	1N4148
D6	do.	1N4148
D7	do.	1N4148
D8	Zenerdiode	1N752A
D9	Diode	1N4148
R1	Resistor	1,8K 1/8W
R2	Trimmerpot.	1K
R3	Resistor	1,5K - Note 1
R4	According to table	
R5	do.	
R6	Resistor	3,3K
R7	According to table	
R8	Resistor	1oK
R9	do.	1oK
R1o	do.	12oK - Note 2
R11	Trimmerpot.	22o ohm
R12	do.	22o ohm
R13	Resistor	12oK - Note 3
R14	do.	3,3K
R15	According to table	
R16	Resistor	1,5K - Note 1

Selektiv call unit - STR-7120

<u>Ckt. symbol</u>	<u>Description</u>	<u>Value or type</u>
R17	According to table	
R18	do.	
R19	Trimmerpotm.	1K
R20	Resistor	1,8K
R21	do.	10K
R22	do.	100K
R23	According to table	
R24	do.	
R25	Resistor	33K
R26	According to table	
R27	do.	
R28	Resistor	33K
R29	do.	120K
R30	do.	33K
R31	do.	1K
R32	do.	4,7K
R33	do.	1,2K
R34	do.	1,2K
R35	do.	680 ohm 1/4 W
R36	do.	56K
R37	do.	1,2K
R38	do.	3,3K
R39	do.	33K
R40	do.	10K
R41	do.	10K
R42	do.	27 ohm
R43	do.	680 ohm 1/4 w
C1	Capacitor	0,1uF
C2	do. Note 1	200 pF-styroflex
C3	do.	15nF
C4	do.	15nF
C5	do. Note 1	1nF, styroflex
C6	do.	4,7uF/16V-tantal
C7	do.	22uF/10V-tanatal
C8	do.	4,7uF/16V-tanal
C9	do. Note 1	1nF, styroflex
C10	do.	15nF

# Component List

## Selektiv call unit - STR-7120

<u>Ckt. symbol</u>	<u>Description</u>	<u>Value or type</u>
C11	Capacitor    Note 1	200 pF, styroflex
C12	do.	15nF
C13	do.	0,1 uF
C14	do.	0,1 uF
C15	do.	0,1 uF
C16	do.	0,1 uF/10%
C17	do.	3,3 uF/16V-tantal
C18	do.	47 uF/6,3V-tantal
C19	El. capacitor	125 uF/16V
C20	Capacitor	0,1 uF/10%
C21	do.	3,3 uF/16V-tantal
C22	do.	4,7 uF/16V-tantal
C23 + C24 + C25	do.	0,1 uF
S1-5	Switch	
K1	Relay	

Note 1: Not used if  $IC_1 - IC_2 = TOA 2741$

Note 2: Selected according to microphone type to be used

